

L 227h-66 EWT(m)/EPA(w)-2/EHA(m)-2 IJP(c) OS
 ACCESSION NR: AT5007943 UR/0000/64/000/000/0611/0615 37
 32
 34
 AUTHOR: Glazov, A. A.; Dzhelepov, V. P.; Dmitriyevskiy, V. P.; Zamolodchikov, B. I.;
 I.; Kol'ga, V. V.; Kropin, A. A.; Onishchenko, L. M.; Shvabe, Yu. I.
 TITLE: Effect of space charge on the free oscillation frequency of particles in an
 isochronous cyclotron 17, 55
 SOURCE: International Conference on High Energy Accelerators. Dubna, 1963.
 Trudy. Moscow, Atomizdat, 1964, 611-615
 TOPIC TAGS: high energy accelerator, space charge, cyclotron
 ABSTRACT: Theoretical studies of the effect of space charge on the motion of par-
 ticles in accelerators have been carried out in a number of works: Berestetskiy,
 V. V.; Gol'din, L. L.; Koshkarov, D. T. *Pribory i tekhnika eksperimenta*, 3, 26
 (1956); Dmitriyevskiy, V. P.; Zamolodchikov, B. I.; Kol'ga, V. V. *Doklad na konfe-*
rentsi po tsiklotronam (Report on the Cyclotron Conference), Gerasov, 1960; Kolo-
 menskiy, A. A.; Lebedev, A. M. *Atomnaya energiya*, 7, 549 (1959). To create strong-
 current accelerators it is important to verify the theoretical conclusions with ac-
 tual operating installations. The present work is concerned with the dependence of
 the frequency of axial oscillations upon the density of the space charge of the ac-
 Card 1/2

L 2274-66

ACCESSION NR: AT5007943

celerated particles. Pertinent measurements were carried out on a cyclotron with spiral magnetic field for the specific case of molecular hydrogen ions accelerated up to the energy of 12 Mev (Vasilevskaya, D. P., et. al., *Atomnaya energiya*, 8, 189 (1960)). The results of the present work shows that the effect of the space charge does not prevent beam intensities of the order of several milliamperes in relativistic cyclotrons. A result of this space charge is the displacement of the zones of resonant interaction of the oscillations. Expressions are obtained which describe the effect of the space charge on the basis of linear equations for the free oscillations, taking account of the electromagnetic field of the accelerated particles. It is assumed that the particles in a condensed bunch are uniformly distributed along the azimuth and that the vertical size of the bunch is much smaller than the azimuthal extension. The main topics discussed are: (1) the density of the charged particles in a relativistic cyclotron and its influence upon the frequency of the axial oscillations; (2) measurement of the azimuthal extension of the bunch; (3) measurement of the frequency of the axial free oscillations; and (4) the limiting intensity of the internal beam in a relativistic cyclotron. Orig. art. has: 6 figures, 8 formulas.

ASSOCIATION: Ob'yedinennyi institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

SUBMITTED: 26 May 66

ENCL: 00

NO REF SOV: 000

SUB CODE: NP

OTHER: 002

Card 212 DP

L 4230-66 EWT(m)/EPA(w)-2/EWA(m)-2 IJP(c) GS
ACCESSION NR: AT5007967

S/0000/64/000/000/0946/0949

AUTHOR: Glazov, A. A.; Kochkin, V. A.; Onishchenko, L. M.; Royfe, I. M.;
Semenov, M. M.; Tuzov, I. V.; Shvabe, Ya.

TITLE: High-frequency system of the 700-Mev cyclotron /9

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963.
Trudy. Moscow, Atomizdat, 1964, 946-949

TOPIC TAGS: high energy accelerator, cyclotron, proton accelerator

ABSTRACT: The accelerating system of the 700-Mev cyclotron must ensure a regime of continuous proton acceleration for a current at maximum radius up to 1 milli-ampere. It is necessary here to have the maximum possible collection of energy of the accelerated protons per revolution, with the restriction that the power of the high-frequency supply to the accelerating electrodes be technically possible and economically admissible. The configuration and structure of the region where the particle acceleration occurs and the design of the accelerator electromagnet are the determining factors in the selection of the scheme for the accelerating system. The small height of the acceleration region, the absence of gap variation accord-

Card 1/3

L 4230-66
ACCESSION NR: AT5007967

ing to azimuth, and insignificant variation according to radius ($2h_{\min} = 146$ mm, $2h_{\max} = 220.4$ mm) with maximum gap in the middle radii are the special features of the accelerator under consideration; namely, a high-field machine with small variation of the magnetic field strength and large spiral. A similar structure for the operating zone excludes the use of simple bulk resonators as accelerating systems even during operation at multiple frequencies of considerable multiplicity, because the vertical dimension of the resonator must amount to about one half of the wavelength of the accelerating voltage, and the period of revolution of a proton in the cyclotron field is 83.3 nanosecond ($f = 1/T = 12$ megahertz). It is also practically impossible to use a multi-electrode (three or more) accelerating system operating at multiple frequencies in the case of an effectively structured region where the acceleration of the protons occur. Even for operations at a frequency equal to twice the frequency of proton revolution, the radius of the accelerator turns out to be greater than a quarter of the wavelength of the accelerating voltage. Moreover it is hardly technically feasible to create a cantilever design more than three meters with supporting elements arranged in the small interpole gap, with rigid requirements upon the constancy and magnitude of the gap between the accelerating electrode and the chamber. A two-dee accelerating system with dees in

Card 2/3

L 4230-66

ACCESSION NR: AT5007967

which the proton flight angle is close to 180° can be realized by various methods. The Joint Institute of Nuclear Research and the Scientific Research Institute of Electrophysical Apparatus have investigated theoretically and experimentally modifications of the accelerating system with semicircular dees, which are closed in a small part of the arch near the axis of symmetry, dees that are part of the homogeneous rectangular line, and dees that are part of the rectangular line with variable wave resistance. Of all the considered possibilities of accelerating system design, the accelerating system in the form of the rectangular line with increased wave resistance outside the gap of the electromagnet possesses the optimum characteristics from the viewpoint of the magnitude of the losses, excitation, and realization of the design. The accelerated system chosen is shown in the present report to satisfy the requirements imposed upon it. The radio-engineering and mechanical designs carried out at the mentioned two institutes and the modelling of the various accelerating system elements point to the possibility of realizing its design and construction and to the expediency of selecting the indicated scheme and principal parameters. Orig. art. has: 3 figures.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

SUBMITTED: 26 May 64
NO REF SOV: 000

ENCL: 00
OTHER: 000

SUB CODE: ... NP

Card 3/3

~~ABRAMSON, Kh.I.~~
~~SHVABELAND, A.A.~~

ABRAMSON, Kh.I., inzh.; ~~SHVABELAND, A.A., inzh.~~

Making boreholes with use of a pneumatic drill. Shakht.stroi.
no.10:6-7 0 '57. (MIRA 10:12)

(Boring machinery) (Pneumatic tools)

SHVABENLAND, A.

New developments in the organization of mining. Mast.ugl. 5 no.2:
7-8 P '56. (MLRA 9:6)

1. Nachal'nik normativno-issledovatel'skoy stantsii Minuglestroya po
Karagandinskomu basseynu.

(Mining engineering)

LIVSHITS, TS.A. [Livshyts, TS.A.], kand.med.nauk; ZEMTSOVA, N.O. ; FRANZHOLI,
N.N.; SHVABOVSKIY, V.A. [Shvabovs'kiy, V.A.]

Intraosseous drip infusion of saline solutions for infants. Ped.,
akush. i gin. 19 no.3:28-29 '57. (MIRA 13:1)

1. L'vovskiy nauchno-issledovatel'skiy institut okhrany materinstva
i detstva (direktor - I.D. Yashchuk) na baze Oblastnoy klinicheskoy
bol'nitsy (glavnyy vrach - I.A. Karagodin).
(INJECTIONS, SALINE)

DONTSOV, P.M., kand.tekhn.nauk (g.Zhdanov); SHVACH, Ye.G., inzh. (g.Zhdanov)

A study of methods which provide increased strength and
toughness of pipes. Stroi. truboprov. 7 no.10:10-13
0 '62. (MIRA 15:11)
(Pipe, Steel)

USSR / Solid State Physics / Phase Transformations in Solid
Bodies

E-6

Abs Jour : Ref Zhur - Fizika, No. 5, 1957 No. 11697

Author : Krasil' shchikov, Z.I., Shvach, Ye. N.

Inst : All-Union Machine-Building Extension Institute, USSR

Title : Fractographic Method of Control of Heat Treatment.

Orig Pub : Zavod. laboratoriya, 1956, 22, No. 9, 1056 - 1061

Abstract : A procedure is detailed for the study of the structure of metals by controlling the fractures of specimens, subjected to mechanical tests. A panoramic method in fractography is considered. Methods of fractographic specimen investigation are detailed for martensitic-sorbitic or sorbitic-pearlitic structures and for the structure of tempered martensite and bainite. An investigation of the fractures can be

Card: 1/2

USSR / Solid State Physics / Phase Transformations in Solid
Bodies

E-6

Abs Jour : Ref Zhur - Fizika, No. 5, 1957 No. 11697

Abstract : recommended for quality control of heat treatment. Here it is advantageous to investigate not only the character of the destruction, but also the structure of the crystalline facets. From the structure of the crystalline facets in the fractures it is possible to establish rapidly the cause of brittleness failure. In the case of pearlite and bainite brittleness, the failure passes through the grain (trans-crystalline fracture), and in the case of tempered brittleness and overheating, it passes over the boundaries of the grain (intercrystalline fracture).

Card: 2/2

SHVACH, Ye.N.

133-9-16/23

AUTHOR: Shmidt, N.V., Krasil'shchikov, Z.N., Pavlenko, N.T. and Shvach, Ye.N.

TITLE: Improvement of Mechanical Properties of Low Carbon Steel by Thermal Treatment. (Termicheskoye uprochneniye malouglerodistoy stali)

PERIODICAL: Stal', 1957, no.9, pp. 833 - 837 (USSR)

ABSTRACT: An investigation of thermal strengthening (rapid cooling in water) of 8 mm plate from MCr.3 steel (for railway tanks) is described. The composition of steel %: C 0.15, Mn 0.49, Si 0.23, S. 0.042, P 0.017, Cr 0.13, Ni 0.07, Cu 0.21. The above investigation included: the determination of the optimum temperature of special heating for thermal strengthening (Table 1), the influence of annealing of thermally-strengthened steel, study of the tendency of thermally-strengthened steel to ageing and the determination of the strength of welded joints from strengthened steel. It was found that the optimum temperature of pre-heating lies within a range of 890-920 °C cooling with water spray for 40 sec (spraying of one side of plates is sufficient); annealing, if improvement in the plastic properties of steel is necessary, at 600 - 650 °C is sufficient (Fig.2); tendency to ageing of thermally-strengthened steel Card1/2 is decreased (Table 2) and mechanical properties of welded

133-9-16/23

Improvement of Mechanical Properties of Low Carbon Steel by Thermal Treatment.

joints are improved. A comparison of the microstructure of untreated and treated steel is shown in Fig.1. The investigation confirmed that thermal strengthening of low carbon steel is advantageous. The following mechanical properties can be obtained: $\sigma_s \gg 35 \text{ kg/mm}^2$, $\sigma_B \gg 50 \text{ kg/mm}^2$, $\delta \gg 14\%$,

$a_k \gg 3 \text{ kg/cm}^2$ (at -20°C after ageing).

There are 2 tables, 3 figures and 6 references, 5 of which are Slavic.

ASSOCIATION: Branch of the TsNII MSP SSSR

AVAILABLE; Library of Congress.

Card 2/2

32-8-30/61

AUTHORS

Krasil'shchikov, Z.N., Shvach, Ye.N.

TITLE

Employment of the Photometric Method in the Investigation of Steel Fractures.
(Primeneniye fotometricheskogo metoda k izucheniyu izlomov stali.)

PERIODICAL

Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 8, pp.959-961 (USSR)

ABSTRACT

Two types of fractures are treated here: fibrous and crystalline ones. On change of temperature a metal may alternately show both types of fractures, but the formation of the facets in a crystalline fracture depends on the microstructural properties of the steel type. A proportionate ligature may in both cases be obtained by the employment of the photometric method, where the reflection properties of the fracture are taken into account as the basis of research works. The section of the paper entitled "Evaluation of various types of brittleness by the photometric method" describes an experiment of the examination of a steel fracture. Microphotographs were taken in 1:200. As a result the formula

$$D_n = F_1 - E_1 + 100 \text{ is given, where } D - \text{ signifies}$$

CARD 1/3

32-8-30/61

Employment of the Photometric Method in the Investigation of Steel Fractures.

the proportional degree of deformation of the facets in blackness units, F_1 and E_1 - corresponding characteristics of the blackness degrees of the facet and the reference sample of the positive. For negatives the formula is:

$D_n = E_2 - F_2 - 100$. A table on the deformation degrees of the facets in various types of brittleness and at various temperatures is given. In the next section entitled "Investigation of the fibrous fractures by means of the photometric method" an example of experiments with two hardened types of steel (at 280-300 kg/mm²) is described. The result shows that in one type the plastic deformation in blackness units was assumed at 100°, in the other type - 80°. For checking the fractures longitudinal filings were carried out and profilographs made. It was found that in the first case the profile was more wound and that in every case it corresponded to the impact toughness value (for A ~ 11 and for B - 14 kgm/cm²). On heating to 600°C the fracture remained fibrous in case A, in case B crystalline points were discovered. The toughness of impact amounted

CARD 2/3

32-8-30/61

Employment of the Photometric Method in the Investigation
of Steel Fractures.

to 9 resp. 10 kgm/cm². This method together with fracto-
graphy is used for the examination of brittle and tough
types of fractures.
(1 table).

ASSOCIATION:

None given.

AVAILABLE:

Library of Congress.

CARD 3/3

KRASIL'SHCHIKOV, Z.I., kand.tekhn.nauk; SHMIDT, N.V., kand.tekhn.nauk;
SHVACH, Ye.N., inzh.

High-pressure pipes made of heat-treated carbon steel. Stroi.
truboprov. 3 no.9:10-14 S '58. (MIRA 11:12)
(Pipe, Steel)

KRASIL'SHCHIKOV, Z.N., kand. tekhn. nauk; SHVACH, Ye.N., inzh.

New techniques for the heat treatment of low-alloy and
low-carbon steel castings. Sudostroenie 24 no.9:60-63
S '58.

(MIRA 11:11)

(Steel--Heat treatment)

14(9,10)

SOV, 55-59-4-3/12

AUTHORS: Krasil'chikov, S.K., Schmidt, E.V., Bontsov, P.K., Candidates of Technical Sciences, Shvach, Ye.K., Pavlenko, N.T., Nechepurenko, S.Ye., Engineers. (Zhdanov)

TITLE: Experimental Industrial Lot of Pipes Made From Thermically Hardened Carbon Steel • (Opytnaya promyshlennaya partiya trub iz termicheskii uprochnennoy uglerodistoy stali)

PERIODICAL: Stroitel'stvo truboprovodov, 1959, Nr 4, pp 8-11, (USSR)

ABSTRACT: Welded pipes from thermically hardened carbon steel St.3 (sp) were manufactured in accordance with "Temporary technical conditions" approved by the Glavgas USSR. The work has been carried out by a branch of TsNII GKS in cooperation with the welding laboratory of VNIIST in the Zhdanovskiy zavod imeni Il'icha (Zhdanov Plant imeni Il'ich). Steel sheets 6,300 x 1,750 x 8 mm were rolled from slabs on mill Trio-Lauta at a starting temperature of 1,250°C and a final temperature of 900-1,000°C. The chemical composition is shown in Table Nr 1. During the hardening process the sheets in packages of 6-10 sheets were placed in an oven having a temperature of up to 1,000°C and were heated to a

Card 1

100-55-1-12

Experimental Industrial Lot of Pipes Made From Thermally Treated Carbon Steel

temperature of $950 \pm 100^\circ\text{C}$; each sheet was held in water during 1 minute in a vertical position. The tempering process consisted in the heating of each sheet separately to a temperature of $540 \pm 10^\circ\text{C}$ during 20 minutes and subsequent cooling by air. In all tested sheets, temporary tensile strength was 50-60 kg/mm²; yield point was 35 kg/mm² and relative elongation (δ_5) over 15%; after artificial aging, toughness at a temperature of -200°C exceeded 3 m kg/cm²; bending angle was 180°. Ratio of the yield point to temporary tensile strength was less than 0.8. After thermal treatment the sheets were subjected to cold dressing in a 7-roller mill during 5-7 minutes and bent to shape in a 4-roller mill, the bending process lasting from 3-5 minutes for each sheet. Automatic welding was done with electrode rods Sv10GS under flux OSts-45 with a current of 38-44 v and 750-850 a. After welding the pipes were subjected to cold rolling during 3-6 minutes. Ends of pipes were calibrated and chamfered. In this condition reception tests were made on 2 pipes of the same smelt, to determine mechanical properties of the welded joint and of the base metal;

Card 2

100-55-1-5/12

Experiment 1 Industrial
Steel

100-55-1-5/12

Results of tests are shown in Table Nr 3. Values of toughness under impact tests are shown in Table 4. At room temperature the toughness is 6.5-14.0 kg/cm^2 . The lower the temperature the lower the toughness and the greater the amount of crystalline portions: at -40°C for instance the fracture is almost entirely crystalline and the toughness is 4.5-7.5 kg/cm^2 . The fused on metal differs from basic metal by a lower toughness under all temperatures. A comparative Graph Nr 1 shows the difference in tensile strength between basic metal, fused on metal and metal in intermediate zones. Chemical composition of fused on metal is shown in Table Nr 3. At first it appeared as though welded, thermally hardened carbon steel pipes should work out slightly more expensive than pipes from low-alloy steel of MK grade. Successive improvements of thermal treatment will, however, lower the cost of production of the pipes from st.3(sp) steel, which will work out cheaper in the end than the pipes from

Card 3/4

10V01-15-4-3/12

Experimental Industrial lot of pipes made from thermically hardened Carbon Steel

low-110,000 grade steel. The industrial trial lot of 42
pipes of welded, thermically hardened carbon steel pipes
proved their fitness for high pressure gas and oil pipe-
line use.
In addition, 1 pipe and 1 minor defect

Corrosion

SHVACH, Y. N.

PHASE I BOOK EXPLOITATION

SOV/4923

Krasil'shchikov, Zal'man Naftal'yevich, Nikolay Vladimirovich Shmidt,
Yevgeniy Nikolaevich Shvach, Nikolay Timofeyevich Pavlenko, and
Stepan Yefimovich Nechepurenko

Termicheskoye uprochneniye nezakalivayushcheyssa uglerodistoy stali
(Thermal Strengthening of Nonhardenable Carbon Steel) Leningrad,
Sudpromgiz, 1960. 146 p. 4,200 copies printed.

Scientific Ed.: G. I. Kapyrin; Ed.: R. D. Nikitina; Tech. Ed.:
N. V. Erastova.

PURPOSE: This book is intended for technical and scientific personnel
of metallurgical plants, scientific research organizations, and lab-
oratories. It may also be useful to students in metallurgical in-
stitutes and departments.

COVERAGE: The book reviews problems of attaining by thermal strengthen-
ing significant improvement in the mechanical properties of that
carbon steel which cannot be quench-hardened. The term "thermal
strengthening" is used to distinguish this process from regular

Card ~~1~~/4

Thermal Strengthening (Cont.)

SOV/4923

heat treatment of hardenable steels. Experience in developing and introducing the thermal strengthening of carbon steel is generalized. The authors state that thermal strengthening increases the ultimate strength and the yield point of carbon steel by 20-30%. As a result of the use of thermally-strengthened carbon steel, the consumption of steel in producing a given object is reduced 20% or more. The authors acknowledge the contributions of P. M. Dontsov, Candidate of Technical Sciences, A. S. Vladimirov and O. T. Vnukova, Engineers, and G. A. Pashenko, and A. P. Rud', Senior Technicians, and thank N. G. Gavrilenko, Engineer, for his help in organizing the experimental investigations at a number of plants under actual working conditions. There are 32 references: 26 Soviet and 6 German.

TABLE OF CONTENTS:

Foreword	3
Ch. I. Nonhardenable Carbon Steels	5
Card <u>2/4</u>	

22724

S/095/60/000/006/001/001
A053/A129

11710

AUTHORS: Krasil'shchikov, Z.N., Candidate of Technical Sciences, Shvach, Ye.
N., Nechepurenko, S.Ye., Engineers (Zhdanov city)

TITLE: Welded pipes of greater strength

PERIODICAL: Stroitel'stvo trub provodov, no. 6, 1960, 11 - 14

TEXT: In order to probe the effectiveness of the hardening thermic treatment, experimental pipes were produced from medium-carbon (Y (SU) steel, containing 0.26% of carbon and 1.05% of manganese, and from low-alloy steel of 14XTC (14KhGS) grade containing 0.14% carbon, 1.25% manganese, 0.54% silicon and 0.64% chrome. Maximum hardening effect was obtained after tempering in water with austenitic temperature of $920 \pm 10^{\circ}\text{C}$. The strength of hardened steel greatly decreases from a tempering temperature of 500°C during 0.5 hours, while plasticity and toughness considerably increase. A good combination of mechanical properties in medium-carbon steel is obtained with a tempering temperature of 670°C , resulting in a yield point of $59-61 \text{ kg/mm}^2$, a tensile strength of 70 kg/mm^2 , a relative elongation exceeding 20%, a relative contraction of cross section exceeding 55% and a toughness of $5.5-6.5 \text{ kgm/cm}^2$ at temperatures between $+20^{\circ}\text{C}$ and -40°C . Low-

Card 1/3

22724

S/095/60/000/006/001/001

A053/A129

Welded pipes of greater strength

alloy steel 14KhGS in the tempered state at equal plasticity and toughness has a slightly lower tensile strength in comparison with medium-carbon steel. Supplementary tests were conducted at the Khartsyzskiy zavod (Khartsyz Plant) using 680-720 mm pipes with a wall thickness of 10 mm. Steel was thermally treated in sheets prior to being processed and after being processed as finished pipes. The micro-structure of the medium-carbon steel after tempering and annealing consisted of sorbite and a very small amount of ferrite, whereas in 14KhGS steel structural-free ferrite existed in larger quantities. The article gives in detail the results of the supplementary tests. The yield point for both brands of steel exceeded 41 kg/mm², but the tensile strength was above 60kg/mm². In both cases bending at 180° was possible without showing cracks; toughness at +20°C exceeded 6 kgm/cm²; at -70°C toughness of 14KhGS steel lies between 3-6.5 kgm/cm² and of SU steel within the limits of 3.5-7.5 kgm/cm². Crystalline sections appear in fractures of 14KhGS steel at -20°C and in SU steel at -40°C. Investigations of toughness of thermally treated and subsequently aged samples revealed that mechanical aging somewhat lowers the toughness, but maintains it at a high level; even at -70°C toughness exceeds 3.5 kgm/cm². Thermic aging does not interfere with the toughness, but the combination of mechanical and thermic aging is apt to lower toughness of steel most especially in the low-alloy steel of 14KhGS grade. Tests revealed that the strength

Card 2/3

22724

S/095/60/000/006/001/001

A053/A129

Welded pipes of greater strength

of welded pipe joints of medium-carbon steel after thermic treatment was not below 60 kg/mm^2 and in case of low-alloy 14KhGS steel between 56 and 60 kg/mm^2 . Toughness of the metal of the welded seam is for both grades within the zone of thermic treatment within $9-13 \text{ kgm/cm}^2$ at $+20^\circ\text{C}$ and $7-10 \text{ kgm/cm}^2$ at -40°C . On the basis of results of tests the authors draw the following conclusions: Medium-carbon and low-alloy steel (SU and 14KhGS) can be used after thermic treatment to produce pipes with a yield point exceeding 40 kg/mm^2 and with a tensile strength of 55- 60 kg/mm^2 . In view of mechanical properties of pipes and technological considerations preference should be given to production of pipes from hot-rolled sheets with subsequent thermic treatment. The utilization of medium-carbon and low-alloy steels for the production of large-diameter welded pipes in a thermically hardened state will reduce steel consumption in pipelines working at high pressure. There are 3 tables, 2 graphs and 2 photographs.

Card 3/3

18 8 200
5 5330

21396
S/032/61/027/012/009/015
B104/B108

AUTHORS: Krasil'shchikov, Z. N., and Shvach, Ye. N.

TITLE: Investigation of the impact strength of steel by tensile testing

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 12, 1961, 1505 - 1509

TEXT: Fracture tests were conducted with an MIM-6 (MIM-6) microscope on Cr-Ni-Mo, Cr-Mn-Mo, and carbon steels. The minimum, maximum, and mean linear dimensions of the crystal facets, as well as the crystallinity coefficient of the fracture surface were determined. All facets within the visual field of the microscope were measured for the determination of their mean linear dimensions. The crystallinity coefficient was cal-

culated from $f = \frac{l_{\text{mean}}^2 \cdot N}{S} \cdot 100$, where l_{mean} is the mean linear dimension of the facets in a given field of view in μ , and S is the surface area of the field of view, in μ^2 . The results of the fracture analysis depend on Card 1/2

Investigation of the impact strength ...

21396
S/032/61/027/012/009/015
B104/B108

the magnifying power of the microscope. At different strengths of the specimens, an identical structure of the fractures corresponds to different impact strengths. The estimation of the impact strength from the fracture must therefore be made bearing in mind the strength (hardness). The impact strength of specimens of equal strength decreases continuously with increasing dimension of the facets. The results show that for every steel brand nomograms can be drawn up for determining its impact strength from the hardness and structure of the fracture. There are 3 figures, 2 tables, and 4 Soviet references.

Card 2/2


S/095/62/000/002/001/001
1031/1231

AUTHOR: Krasil'shchikov, Z. N., Candidate of Technical Sciences, Nechepurenko, S. E., Engineer,
and Shvach, E. N., Engineer (Zhdanov)

TITLE: Investigation of heat-treated carbon-steel pipes

PERIODICAL: Stroitel'stvo truborovodov, No. 2, 1962, 12-14

TEXT: Heat-treated St.3(Sp) carbon steel pipes were studied to determine whether St. 3(Sp) carbon steel could replace low-alloyed steel in the manufacture of gas- and oil pipes. The physical properties of the base metal and the welds of an experimental batch of 41 pipes were investigated. The tensile properties, impact strength and ductility in both base metal and welding seams were satisfactory. The pipes were also subjected to hydrostatic tests. The macrostructure and hardness of the welds yielded satisfactory results. Application of heat-treated carbon steel in the manufacture of high-test line pipe is justified from both the technical and the economic standpoints. There are 4 figures and 4 tables.



Card 1/1

DONTSOV, P.M.; SHVACH, Ye.N.

Efficient methods of hardening low-alloy and low-carbon steel.
Stal' 22 no.2:165-167 F '62. (MIRA 15:2)

(Steel alloys—Hardening)

SHMIDT, N.V.; DONTSOV, P.M.; KRASIL'NIKOV, Z.N.; SHVACH, Ye.N.;
OVSYANNIKOV, I.I.

Heat treated carbon steel for shipbuilding. Sudostroenie 28
no.9:44-48 S '62. (MIRA 15:10)
(Plates, Iron and steel—Testing) (Shipbuilding)

SHVACHINSKIY, P. N.; DORIN, YU. A. i PICTROVSKIY, K. B.; MILLER, F.

29691

Tyekhologiya izgotovleniya gipsovykh Form v Kyeramike.

Styeklo i Kyeramika, 1949, No 8, s. 20-23

3. Ryezinovaya Promyshlyennost'

Trudy akadyemika S.V.Lyebedyeva v oblasti sintyetchyeskogo kauchuka-sm. 29541

Dvustoronnyaya vulkanizatsiya avtopokryshyek s Primenyeniyem Elyektromanzhyet-sm. 29851

11. Lyesozagotovki Lesnaya i Dyeryerobratyvayu-shaya Promyshlyennost'.

Myebyel'noye Proizvodstvo

SO:LETOPIS' NO. 40

SHVACHINSKIY, P.N.
BCS

*Manufacturing Processes
Training, Rep., Shaping*

248. Casting heavy parts under pressure.—P. N. SHVACHINSKIY (Sov. Kuzn., 8, No. 7, 19, 1951). In Russian plants cast-iron and other parts and flanges were normally cast in separate moulds. The author recommends a piping system for casting articles in series under pressure, regardless of the shape of the plaster mould. This method avoids difficulties arising in the normal cast or battery casting process owing to varying shapes of articles (e.g. moulds for some articles cannot be arranged in batteries). The second advantage of the method is the pressure used for casting, which will make it possible to render the filling and re-filling operations automatic. The method will also allow a series filling of batteries which are now filled separately. The harmful effect of the impact of the stream of slip against the surface of the plaster mould (called "casting spot") is avoided with this method, since moulds are filled under pressure from below. The piping system is described. (5 figs.)

ACC NR: AR6019069

SOURCE CODE: UR/0274/66/000/001/A035/A036

AUTHOR: Tokar', S. Ye.; Shvachka, N. F.

TITLE: Noise in train radio communication in areas using alternating current as the motive force for trains

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 1A238

REF SOURCE: Tr. Khar'kovsk. in-ta inzh. zh.-d. trans., vyp. 72, 1965, 73-76

TOPIC TAGS: radio-noise, radio communication

TRANSLATION: The results of studying train radio communications at the Pantayevka and Koristovka stations on the Odessa-Kisheneva Railroad are presented; the alternating current potential was 27 kv and the locomotive involved was electric locomotive WL 60. During the summer, the potential of interference was measured by instrument IP-12M at the train radio communication frequency of the experimental sector (2.586 MHz). When stationary radio station Zh-3 was hooked in to the terminal of reversed current, the noise potential was 300-400 μ , and when connected to a sloping beam type antenna the noise potential dropped to 150 μ ; when connected to the locomotive antenna, it was 200-250 μ . The analysis of obtained results are included. 6 illustrations. I. D.

SUB CODE: 17,09

UDC: 621.396.931

Card 1/1

SOV/133-59-4-20/32

AUTHORS: Beloruchev, L.V., Candidate of Technical Sciences, and
Shvachkin, A.K., Engineer

TITLE: Protective Atmospheres from Technical Nitrogen for
Thermal Treatment of Steel (Zashchitnyye atmosfery
iz tekhnicheskogo azota dlya termicheskoy obrabotki
stali)

PERIODICAL: Stal', 1959, Nr 4, pp 354-360 (USSR)

ABSTRACT: The use of technical nitrogen, obtained from oxygen
producing plants, for protective atmospheres for thermal
treatment of steel is discussed. Two methods of
purification of nitrogen from the residual oxygen are
proposed: the use of liquid ammonia and charcoal
generator. Technological scheme for the production of
protective atmosphere from nitrogen with 4 to 10% of
hydrogen dried to -40° dew point, of an output 200 m³/hr
designed by Giprometiz is shown in Fig 1. As a source of
hydrogen, combining residual oxygen and entering into the
composition of protective gas, liquid ammonia is used.
Ammonia is dissociated at 900°C over a catalyst. The
final removal of oxygen is done over a palladium catalyst
(Fig 5). The cheapest method of the production of

Card 1/2

SOV/133-59-4-20/32

Protective Atmospheres from Technical Nitrogen for Thermal
Treatment of Steel

protective atmosphere is by passing technical nitrogen through a retort with incandescent charcoal (900°C). The scheme of the plants for this purpose designed by Stal'proyekt is shown in figures 6 and 7. Approximate costs of various protective atmospheres are compared in the table. There are 7 figures and 1 table.

ASSOCIATION: Giprometiz

Card 2/2

SHVACHKIN, B.I.

Introducing a multiple-purpose copying milling machine with
a pantograph. Biul. tekhn.-ekon. inform. Gos. nauch.-issl.
inst. nauch. i tekhn. inform. 18 no.3:29-30 Mr '65.
(MIRA 18:5)

J.

USSR/Soil Science - Soil Biology

Abs Jour : Ref Zhur - Biol., No 4, 1958, 15300

Author : D.D. Shvachkin

Inst :

Title :

The Dynamics of the Decomposition of Coniferous Forest Litter and of Humus Accumulation in Carbonate and Non-Carbonate Soils.
(Dinamika razlozheniya khvoynoy lesnoy podstilki i nakopleniya pereгноya v karbonatnoy i beskarbonatnoy pochvakh).

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1956, vyp. 22, 289-295

Abstract : It was revealed in experiments on the decomposition of coniferous litter under various conditions of moisture for 90 days at 20-22° that cell decomposition was most active (a contraction of 42%) under conditions of optimal moisture which corresponded to 60% of the

Card 1/3

J.

USSR/Soil Science - Soil Biology

Abs Jour : Ref Zhur - Biol., No 4, 1958, 15300

moisture capacity of the vegetable residue. Under conditions of excess moisture (more than 100% of its moisture capacity) cell decomposition was 17%, and under variable conditions where the moisture shifted every 10 days from the optimum to excessive, it was 8.3%. The amount of albumin was reduced under all conditions of moisture, but it reached its highest degree under excessive moisture. Lignin with optimum moisture underwent insignificant change, although under variable conditions its quantity was reduced by more than 10%. With excessive and variable moisture its loss through alkalization ran to 52-54%. Humus formation took place as pine needles decomposed in variable moisture conditions and its quantity doubled as compared with the outset. The total N in non-carbonate soil humus was found to be 38-40% and in carbonate soil it was 11-14%. Soil acidity remained unchanged in optimum

Card 2/3

3/

Card 3/3

L 11117-65 EWT(d)/FBD/FSF(h)/FSS-2/EWT(1)/EEC(k)-2/ENG(r)/EWA(d)/EEC-1/
 EEC(t)/EEC(c)-2 Pd-1/Pe-5/Ph-1/P1-1/P1-1/Pn-1/Po-1/Pq-1/Pac-1/Pae-2/Pb-1
 AFETR/RAEM(a) TT/GG/GW/WS/AST
 S/0109/64/009/010/1735/1739
 ACCESSION NR: AP4046671

AUTHOR: Kolosov, M. A.; Yakovlev, O. I.; Yefimov, A. I.; Shvachkin, K. M.;
 Rozgon, Yu. K. (b)

TITLE: Meter-wave propagation in interplanetary space

SOURCE: Radiotekhnika i elektronika, v. 9, no. 10, 1964, 1735-1739

TOPIC TAGS: interplanetary space, meter wave, meter wave propagation, radio wave propagation

ABSTRACT: The results of an investigation of 183.6-Mc radio-wave propagation are reported and compared with some published data. The level of a signal received from Mars-1 artificial object was determined by comparing it with the receiver noise. The latter was measured by means of a calibrated noise generator and also by a comparison with the r-f radiation coming from Cassiopeia-A. Although the measurements within the 26-50-million-km range

Card 1/2

L 11147-65

ACCESSION NR: AP4046671

were not reliable, the maximum possible attenuation is estimated as 4 ± 2 db over a 50-million-km distance in interplanetary space. A comparison of these primary results with other American, British, and Soviet published data brings about these conclusions: (1) The meter-band radiowave attenuation over 50 million km is 2-4 db or lower; (2) Interplanetary space may cause interference-type fading; (3) Widening of the signal spectrum is 2×10^{-9} or less; (4) Some data indicates that a solar activity influence on a received-signal level and on radar ranging is possible. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 05May64

ENCL: 00

SUB CODE: EC, AA

NO REF SOV: 003

OTHER: 010

Card 2/2

L 22608-66 FRD/EWT(1) CH/WS-2

ACC NR: AP6011441

SOURCE CODE: UR/0109/66/011/004/061/0622

AUTHOR: Yakovlev, O. I.; Yefimov, A. I.; Shvachkin, K. M.

ORG: none

TITLE: Attenuation of radio waves in interplanetary space and in the vicinity of the Sun

SOURCE: Radiotekhnika i elektronika, v. 11, no. 4, 1966, 617-622

TOPIC TAGS: radio wave absorption, radio wave propagation, space communication

ABSTRACT: A study of attenuation of meter-band radio waves in interplanetary space and in the vicinity of the Sun is discussed. A method of precise measurements of radio emission from radio source Taurus-A was employed. The measurements were made from March through December 1964 at 184 Mc and various values of angle ψ . The bandwidth of the antenna radiation pattern permitted measurements at $\psi \geq 5^\circ$. On the basis of the measurements, the following conclusions were reached: 1) There is no attenuation (within limits of $\pm 5\%$) in the propagation of radio waves with a continuous spectrum at the 1.6-m band for a distance of 3×10^8 km when the energy beam propagates at a distance of 2.5×10^7 km from the Sun. 2) Little attenuation was observed during the propagation of radio waves with a continuous spectrum at the 11-, 3.5-, and 1.6-m bands through all the interplanetary space within the Earth's orbit

Card 1/2

UDC: 621.371.191/.192:523.164.3

L 22608-66

ACC NR: AP6011441

when the energy beam propagates at a distance of 1.3×10^7 km from the Sun.
3) During the propagation of monochromatic radio waves at the meter band in inter-planetary space and in the vicinity of the sun a change in the spectrum could be observed which leads to the development of apparent attenuation during reception by a narrow-band receiver. Orig. art. has: 2 figures, 9 formulas, and 1 table.
[GS]

SUB CODE: 17/ SUBM DATE: 26Jan65/ ORIG REF: 008/ OTH REF: 013/ ATD PRESS:

4228

Card 2/2 *bu*

SHVACHYTN, N. Vh.

Mbr. Moscow Inst. Psychology, Acac. Pedagogical Sci. RSFSR, -1949-. "Development of
the Perception of Vocal Sounds and Otology," Vest. Oto-rino-laringol. No. 2, 1949.

SHVACHKIN, YU. P.

C. A. V-48
Jan 10, 1954
Organic Chemistry

Synthesis of pyrimidoimidazoles. M. A. Prokof'ev, E. G. Antonovich, and Yu. P. Shvachkin (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 87, 783-5 (1952).—Addn. of 2 g. 2-amino-4-hydroxy-6-methylpyrimidine to 4.6 g. (MeCHBrCO)₂O in CHCl₃ and heating 5 hrs. at 80-90° gave 59% 2-bromopropionylamino-4-hydroxy-6-methylpyrimidine, m. 170° (from MeOH or H₂O). To 1.84 g. Na in 50 ml. MeOH was added 2.34 g. guanidoacetic acid, followed by 5.2 g. AcCH₂CO₂Et and the mixt. refluxed 20 hrs., concd., washed with Et₂O, taken up in 5% HCl (pH 1) gave 18.2% 4-oxo-6-methylpyrimidino-2,3:2',3'-dihydroimidazol-5'-one, m. 310° (from H₂O); acidification of the filtrate to pH 5 gave 29.7% (2-amino-4-oxo-6-methyl-3-pyrimidyl)acetic acid, m. 240-1°. Heating α-guanidopropionic acid with AcCH₂CO₂Et as above 12 hrs. at 120° gave 25% 4-oxo-6-methylpyrimidino-2,3:2',3'-dihydro-4'-methylimidazol-5'-one (I), decomp. 283°; if run at reflux in EtOH the yield drops to 10% but acidification of the soln. to pH 3 yields 23% α-(2-amino-4-oxo-6-methyl-3-pyrimidyl)propionic acid, m. 227°. Letting 1.4 g. 2-bromopropionylamino-4-hydroxy-6-methylpyrimidine stand 35 hrs. with 30 ml. liq. NH₃ yields 28.5% I. Boiled with 25% HCl it yields 45% anti-5-N (VanSlyke) in 160 hrs., and 73% in 307 hrs. Similarly, liq. NH₃ and 2-(2-bromobutylamino)-4-hydroxy-6-methylpyrimidine gave 25% 4-oxo-6-methylpyrimidino-2,3:2',3'-dihydro-4'-ethylimidazol-5'-one, m. 213° (from H₂O). Refluxing 1.59 g. α-guanidoisovaleric acid with 0.92 g. Na in 30 ml. EtOH with addn. of 6.5 g. AcCH₂CO₂Et and boiling the mixt. 8 hrs. gave 25% α-(2-amino-4-oxo-6-methyl-3-pyrimidyl)isovaleric acid, m. 185° (from H₂O).

G. M. Kosolapoff

SHVACHKIN, YU. P.

USSR/Chemistry

Card : 1/1

Authors : Prokofyev, M. A., and Shvachkin, Yu. P.

Title : Synthesis of Pyrimidineimidoazolones

Periodical : Zhur. Ob. Khim., 24, Ed. 6, 1046 - 1049, June 1954

Abstract : Experiments showed that lactam of guanidosuccinic acid will enter into a condensation reaction with compounds of the acetoacetic and malonic esters type, yielding homologous pyrimidine-2, 3 : 2, '3'-dihydroimidazolones-5'. It was established, that the compound obtained, possesses acid properties and the acidity of the compound increases, with the increase in the number of oxo-groups in the pyridine cycle. Three references.

Institution : The State University, Moscow

Submitted : December 19, 1953

SHVACHKIN, Yu. P.

V Pyrimidinimidazolone series. II. Synthesis of pyrimidinimidazolones based on the lactam of β -guanidinopropionic acid. M. A. Prokof'ev and Yu. P. Shvachkin (Moscow State Univ.). *Zhur. Obshchei Khim.* 25: 975-80 (1955); cf. C.A. 49, 6001a. To 1.38 g. Na in 50 ml. abs. EtOH was

added 1.5 g. $\text{MeCH}_2\text{CO.NH.C(:NH).NH.HCl}$ (I) and the mixt. was stirred 10 min. then heated to reflux and treated dropwise with 8.7 g. $\text{AcCH}_3\text{CO}_2\text{Et}$ and refluxed 5 hrs. longer; after evapn. in *vacuo* and treatment with 5% HCl to produce pH 4, there was obtained a ppt. of 62.5% 4-oxo-4',6-dimethyl-2,3-dihydropyrimidino-2,3,2',3'-imidazolidin-5'-one, $\text{C}_{11}\text{H}_{12}\text{N}_4\text{O}_2$ (II), decomp. 282° (from H_2O), which reacts with 1 mole of base. Similarly, $\text{AcCH}_2\text{CO}_2\text{Et}$ gave 60.7% 5-Et deriv. of II, m. 263° (from EtOH); $\text{AcCHBuCO}_2\text{Et}$ (III) gave 32.8% 5-Bu deriv. of II, m. 229° (from EtOH). The re-

action, conducted similarly, between III and $\text{CH}_3\text{CO}_2\text{NH.C(:NH).NH}$ (IV) gave 28% 4-oxo-6-methyl-5-butyl-

2,3-dihydropyrimidino-2,3,2',3'-imidazolidin-5'-one, m. 252° (from EtOH). I and $\text{CH}_3(\text{CO}_2\text{Et})_2$ similarly gave 58% 4,6-dioxotetrahydropyrimidino-2,3,2',3'-(4-methyl)dihydroimi-

dazol-5-one, m. 225° (from H_2O), which reacts with 1.5 moles of base. I and $\text{EtCH}(\text{CO}_2\text{Et})_2$ gave 60.8% 4,6-dioxo-6-ethyl-4'-methyl-3,4,5,6-tetrahydropyrimidino-2,3,2',3'-imidazolidin-5'-one, decomp. $290-1^\circ$ (from H_2O), which reacts with 1.2 moles of base. I and $\text{BuCH}(\text{CO}_2\text{Et})_2$ gave 70.6% 4,6-dioxo-6-butyl-4'-methyl-3,4,5,6-tetrahydropyrimidino-2,3,2',3'-imidazolidin-5'-one, m. 228° which reacts with 1.2 moles of base. IV and $\text{PhCH}(\text{CO}_2\text{Et})_2$ gave 63.9% 4,6-dioxo-6-phenyl-3,4,5,6-tetrahydropyrimidino-2,3,2',3'-imidazolidin-5'-one, decomp. 318° (from H_2O), which reacts with 1.4 moles of base. *Yu. P. Shvachkin, G. M. Kosolapoff*

SHVACHKIN Yu. P.

Synthesis of hydroxyimide-N-alkylcarboxylic acids.
M. A. Prokof'ev and Yu. P. Shvachkin. Gen. Chem.
U.S.S.R. 25, 1106-8 (1950) (Engl. translation). See C.A.
50, 3457f.
B. M. B.

C.H.

①

300

PROKOF'YEV, M.A.; SHVACHKIN, Yu.P.

Synthesis of pyrimidine-(N)-alkyl carboxylic acids. Zhur.ob.khim.
25 no.6:1218-1222 Je '55. (MLRA 8:12)

1. Moskovskiy Gosudarstvennyy universitet
(Pyrimidinecarboxylic acid)

SHVACHKIN, Yu. E.; PROKOF'YEV, M. A.

Pyrimidineimidazolones. Part 3. Preparation of salts and alkylation
of pyrimidineimidazolones. Zhur.ob.khim. 26 no.12:3416-3421 D '56.
(MLHA 10:7)

1. Moskovskiy gosudarstvennyy universitet.
(Imidazolones)

PROKOF'YEV, M.A.; ANTONOVICH, Ye.G.; SHVACHKIN, Yu.P.

Pyrimidinimidazolones. Part 4: Absorption spectra of pyrimidinim
pyrimidinimidazolones in the ultraviolet region. Vest.Mosk.un.
Ser.mat.,mekh.,astron.,fiz., khim. 12 no.3:199-209 '57.
(MIRA 11:3)

1.Laboratoriya khimii belka imeni akad. N.D. Moskovskogo
gosudarstvennogo universiteta.
(Imidazolone--Spectra)

SHUTKIN, Y. P.

SHUTKIN, Y. P. (Moscow).

Synthesis of heterocyclic condensed pyrimidine systems. Uspekhi .
26 no. 2: 24-35 57. (1981 10:3)
(Systems (Chemistry)) (Pyrimidine)

SHVACHKIN, Yu.P. [translator]; STEPANENKO, B.N., red.

Phosphates of carbohydrates (from "Quart.Revs." 71, 61-85, 1957)
A.G. Foster, U.G. Overend. Usp. khim. 27 no.7:891-914 J1 '58.
(MIRA 11:9)

(Carbohydrates)	(Phosphates)
(Foster, A.G.)	(Overend, U.G.)

SOV/79-28-6-41/63

AUTHORS: Shvachkin, Yu. I., Brokof'yev, M. A.

TITLE: The synthesis of 2-phosphorylamino-pyrimidines (Sintez fosforil-aminopirimidinov)

ABSTRACT: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6, pp. 1617-1621 (USSR)

ABSTRACT: There are no data in papers concerning phosphorylated amino-pyrimidines, but compounds of similar type are of great theoretical and practical interest: theoretically this is the case, with respect to the problem concerning the character of the intranucleotide compounds in the macromolecules of nucleic acids, and practically in the biological sense. It is not impossible that the biological activities of these compounds may be compared with those of phosphorylated oxy-pyrimidines among which highly effective insecticides causing no harm to warm blooded animals can be found (Refs 1, 2). In the present paper the synthesis of some 2-phosphorylamino-pyrimidines is described, which is based on the condensation of the diphenylester of the guanidinephosphoric acid with

Card 1/3

The Synthesis of Phosphorylamino-pyrimidines

SOV/79-28-6-41/63

compounds of the type of acetoacetic ester and malonic acid ester. Acetoacetic ester is condensed with diphenylphosphoryl-guanidine on heating in alcohol solution in the presence of sodiumalcoholate accompanied by the formation of 2-diphenyl-phosphorylamino-4-oxy-6-methylpyrimidine (1) according to scheme 1. The malonic acid ester and its homologues condense with diphenylphosphorylguanidine on the same conditions to the corresponding 2-diphenyl-phosphorylamino-4,6-dioxypyrimidines (scheme 2). The compounds obtained are colorless crystalline products having high melting points; they are easily soluble in alcohols and difficult to solve in water. Thus, a method for the synthesis of 2-phosphorylamino-pyrimidines is suggested which is based on the condensation of phosphorylated guanidines with β -dicarbonyl compounds. The following compounds which are not described in papers were synthesized: 2-diphenylphosphorylamino-4-oxy-6-methylpyrimidine, 2-diphenylphosphorylamino-4,6-dioxypyrimidine, 2-diphenylphosphorylamino-4,6-dioxy-5-methylpyrimidine and 2-diphenylphosphorylamino-4,6-dioxy-5-ethylpyrimidine. The hydrolysis of the synthesized compounds was investigated. There are 10 references, 3 of which are Soviet.

Card 2/3

The Synthesis of Phosphorylamino-pyrimidines

SOV/79-28-6-41/63

ASSOCIATION: Moskovskiy gosudarstvennyy universitet
(Moscow State University)

SUBMITTED: May 19, 1957

1. Pyrimidines--Synthesis

Card 3/3

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.; PROKOF'YEV, M.A.

Synthesis of amino acid derivatives of the adenosine-2'-phosphoric acid series. Zhur.ob.khim. 30 no.8:2462-2466 Ag '60.
(MIRA 13:8)

1. Moskovskiy gosudarstvennyy universitet.
(Amino acids)
(Adenosinephosphoric acid)

SHVACHKIN, Yu. P.; AZAROVA, M. T.

Possibility of converting acyclic amino acids to pyrimidine derivatives. Vest. Mosk. un. Ser. 2: Khim. 16 [i.e.17], no.6: 71-72 N-D '62. (MIRA 16:1)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

(Amino acids) (Pyrimidine)

SHVACHKIN, Yu.P.; SYRISOVA, L.A.

Re-esterification reactions in the synthesis of α -(pyrimidylmethyl)-
 α -acetylaminomalonic esters. Vest.Mosk.Un.Ser.2. khim. 16 no.6:75-
76 N-D '61. (MIRA 14:11)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta.
(Malonic acid) (Esterification)

SHVACHKIN, Yu.P.; AZAROVA, M.T.; PROKOF'YEV, M.A.

Derivatives of adenosine-2'-phosphoamino acid. Zhur.ob.khim.
31 no.7:2107-2112 J1 '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Adenosine phosphate) (Amino acids)

SHVACHKIN, Yu.P.; AZAROVA, M.T.; PROKOF'YEV, M.A.

Formation of cyclophosphate in the adenosine-2'-phosphoamide series. Zhur.ob.khim. 31 no.7:2112-2114 J1 '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Adenosine phosphate) (Amino acids)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.; SAVEL'YEV, V.L.

Synthesis of α -pyrimidylmethyl- α -formylaminomalonic esters.
Vest.Mosk. un. Ser.2:khim. 17 no.1:73-74 Ja-F '62. (MIRA 15:1)

1. Moskovskiy gosudarstvennyy universitet, kafedra organicheskoy
khimii.

(Malonic acid)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.

Synthesis of ~~..(4-hydroxy-6-methyl-2-pyrimidinyl)-~~alanine. Vest.
Mosk.un.Ser.2: Khim. 17 no.2:76-77 Mr-Ap '62. (MIRA 15:4)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Pyrimidinealanine)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.; BERESTENKO, M.K.; PROKOF'YEV, M.A.

Directions of the cleavage of pyrimidyl-4-malonic esters. Zhur.
ob.khim. 32 no.6:2060-2061 Je '62. (MIRA 15:6)

1. Moskovskiy gosudatstvennyy universitet im.M.V.Lomonosova.
(Malonic acid)

SHVACHKIN, Yu.P.; BERESTENKO, M.K.

Reactions of nucleophilic displacement in the synthesis of
N-(4-pyrimidyl)-amino acids and their derivatives. Zhur.ob.khim.
32 no.5:1712-1713 My '62. (MIRA 15:5)

1. Moskovskiy gosudarstvennyy universitet.
(Amino acids) (Substitution (Chemistry))

SHVACHKIN, Yu.P.; AZAROVA, M.T.

Preparation of willardine from albizziine. Zhur.ob.khim.
32 no.10:3448-3449 0 '62. (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet.
(Willardine) (Albizziine)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.; PROKOF'YEV, M.A.

Potential antimetabolites. Part 1: Synthesis of β -(4-hydroxy-6-methyl-2-pyrimidinyl)-alanine. Zhur.ob.khim. 32 no.8:2431-2436 Ag '62. (MIRA 15:9)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. (Pyrimidinealanine) (Protein metabolism)

SHVACHKIN, Yu.P.; SYRTSOVA, A.L.; SAVEL'YEV V.L.; PROKOF'YEV, M.A.

Potential antimetabolites. Part 2: Preparation of substituted α -(pyrimidyl-2-methyl)- α -aminomalonic esters and a new synthesis of β -(4-oxy-6-methyl-2-pyrimidyl) alanine. Zhur.ob.khim. 32 no.10:3144-3148 0 '62. (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet im.
M.V. Lomonosova.

(Malonic acid)
(Alanine)

L 12608-63

EWT(m)/BDS RM

ACCESSION NR: AP3001610

S/0189/63/000/003/0082/0084

AUTHOR: Shvachkin, Yu. P.; Berestenko, M. K.; Mishin, G. P. 53

TITLE: Synthesis of uracil-4-acetates

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 3, 1963, 82-84

TOPIC TAGS: uracil, orotic acid, esterification, oleum

ABSTRACT: The paper describes the synthesis of various esters of uracil-4-acetic acid. Their synthesis takes place in the presence of 15% fuming sulfuric acid, using as issuing materials citric acid, urea, and various alcohols. While the methyl and ethyl esters were thus obtained by earlier workers, the authors synthesized a new series of uracil-4-acetic acid esters of the propyl-, butyl-, amyl-, and octyl-alcohols, and studied their yield and constants. All the esters were colorless crystalline substances with melting points ranging from 174 to 220C. The authors express their thanks to M. A. Prokof'yev for his attention and interest in their work. Orig. art. has: 1 picture, 1 formula, and 1 table.

ASSOCIATION: Moskovskiy universitet, kafedra organicheskoy khimii (Moscow University, Department of Organic Chemistry)

Card 1/2/

SHVACHKIN, Yu.P.; BERESTENKO, M.K.

Synthesis of pyrimidyl-4-alkanecarboxylic esters based on
nucleophilic substitution reactions. Vest.Mosk.un. Ser.2:Khim.
18 no.1:74-75 Ja-F '63. (MIRA 16:5)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Esters) (Substitution (Chemistry))

SHVACHKIN, Yu.P.; FILATOVA, M.P.; SIRTSOVA, L.A.

Synthesis of the pyrimidine analog of α -tyrosine. Vest. Mosk. un.-
Ser.2:Khim. 18 no.2:55-57 Mr-Apr '63. (MIRA 16:5)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Pyrimidinealanine) (Tyrosine)

SHVACHKIN, Yu.P.; STRTSOVA, L.A.

Synthesis of β -(4-chloro-6-amino-2-pyrimidinyl)-alanine.
Vest. Mosk. un. Ser. 2: Khim. 18 no.3:80-81 My-Je '63.
(MIRA 16:6)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Pyrimidinealanine)

SEVACHKIN, Yu.P.; SYRTSOVA, L.A.

Synthesis of a pyrimidine analog of β -(2,4-dihydroxy-6-methylphenyl)-alanine. Vest.Mesk. un. Ser.2: Khim. 18 no.4:88-90 J1-Ag '63.
(MIRA 16:9)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Alanine) (Pyrimidine)

SHVACHKIN, Yu.P.; KRIVTSOV, G.G.

Preparation of α - C^{14} - β -(4-hydroxy-6-methyl-2-pyrimidyl)-alanine.
Vest.Mosk. un. Ser.2: Khim. 18 no.4:91-92 JI-Ag '63. (MIRA 16:9)

1. Kafedra organicheskey khimii Moskovskogo universiteta.
(Alanine) (Pyrimidine) (Carbon isotopes)

SHVACHKIN, Yu.P.; AZAROVA, M.T.; RAPANOVICH, I.I.

Interaction of uracil with derivatives of acrylic acid. Vest.
Mosk. un. Ser. 2: Khim. 18 no.5:68-69 S-O '63. (MIRA 16:11)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

SHVACHKIN, Yu.P.; AZAROVA, M.T.

Potential metabolites. Part 4: Derivatives of 3-uracilacetic
acid. Zhur.ob.khim. 33 no.2:590-595 F '63. (MIRA 16:2)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Pyrimidineacetic acid) (Antimetabolitis)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.

Potential antimetabolites. Part 5: Peptides of
-(4-hydroxy-6-methyl-2-pyrimidyl)alanine. Zhur.ob.khim.
33 no.3:778-783 Mr '63. (MIRA 16:3)

1. Moskovskiy gosudarstvennyy universitet imeni
M.V. Lomonosova.
(Alanine) (Peptides)
(Antimetabolites)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.; FILATOVA, M.P.

Potential antimetabolites. Part 6: Synthesis of ¹⁴C-(4-hydroxy-2-pyrimidinyl)-alanine. Zhur. ob. khim. 33 no.8:2487-2493
Ag '63. (MIRA 16:11)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.

SHVACHKIN, Yu.P.; BERESTENKO, M.K.

Potential antimetabolites. Part 9: Substituted pyrimidyl-4-
alkanecarboxylic esters. Zhur.ob.khim. 33 no.10:3132-3135
0 '63. (MIRA 16:11)

1. Moskovskiy gosudarstvennyy universitet.

SHVACHKIN, Yu.P.; SYRTOVA, L.A.

Potential antimetabolites. Part 10: Preparation of
 β -(5-[di(2-chloroethyl)amino]-2-methoxyphenyl)- α -D, L -alanine.
Zhur.ob.khim. 33 no.12:3805-3810 D '63. (MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SHVACHKIN, Yu.P.; NOVIKOVA, M.A.; REZNIKOVA, M.B.; PADYUKOVA, N.Sh.

New synthesis and feasibility of the fermentative activation of
 β -(4-hydroxy-2-pyrimidinyl)alanine. Zhur.ob.khim. 33 no.12:4022-
4023 D '63. (MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet i Institut khimii prirodnikh
soyedineniy AN SSSR.

SHVACHKIN, Yu.P.; AZAROVA, M.T.

Potential antimetabolites. Part 11: New synthesis of willardine.
Zhur.ob.khim. 34 no.2:407-411 F '64. (MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.

SHVACHKIN, Yu.P.; BERESTENKO, M.K.; MISHIN, G.P.

Possibility and conditions of decarboxylation of uracil-4-acetic acid. Zhur. ob.khim. 34 no. 5:1687-1688 My '64.
(MIRA 17:7)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SHVACHKIN, Yu.P.; BERESTENKO, M.K.

Synthesis of a pyrimidine analog of 3,5-dioxyphenylalanine.
Vest. Mosk. un. Ser.2:Khim. 19 no.1:79-81 Ja-F '64. (MIRA 17:6)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

CHURCHIN, Yu. I.; KURCHENKO, H.A.

Pyrimidines and amino acids: interconversions in biological and chemical systems. Vest. Mosk. univ. Ser. 2 Khim. 19 no.2:3-15
Mr-Apr'64

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

SHVACHIN, Yu. I.; Shvachin, I. I.

Synthesis of a pyrimidine analog of phenylalanine. Vest. Mosk.
un. Ser. Khim. 19 no. 2:72-73 1964 (NO RA 17:6)

1. Pafila signalizatsiya Khim. Moskovskogo universiteta.

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.

Potential antimetabolites. Part 12: Synthesis of

β -(2,4-dihydroxy-6-methyl-5-pyrimidinyl)alanine.

Zhur. ob. khim. 34 no.7:2159-2164; JI '64 (MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

SHVACHKIN, Yu.P.; KRIVTSOV, G.G.

Potential antimetabolites. Part 13: Synthesis and properties of
 α -¹⁴C- β -(4-hydroxy-6-methyl-2-pyrimidinyl)-alanine. Zhur.
ob. khim. 34 no.7:2164-2167 J1 '64 (MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.

SHVACHIKIN, Yu.P.; AZAROVA, M.T.

Potential antimetabolites. Part 14: Pyrimidiny- β - α -amino
acids. Zhur. ob. khim. 34 no.7:2167-2173 J1 '64
(MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

SHVACHKIN, Yu.P.; BERESTENKO, M.K.

Synthesis of lathyrine. Zhur. ob. khim. 34 no.10:3506-3507 G '64.
(MIRA 17:11)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.

SHVACHKIN, Yu.P.; VITOL, M.Ya.; SHPRUNKA, I.K.

Removal of glycine from reaction mixtures by a microbiological
method. Zhur. ob. khim. 34 no.10:3508-3509 O '64. (MIRA 17:11)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.

SHVACHEIN, Yu.P.; AZAROVA, M.T.

Potential antimetabolites. Part 16: Reaction of citrulline with
cyanoacetate. Zhur. ob. khim. 35 no.3:563-570 Mr '65.
(MIRA 18:4)

1. Moskovskiy gosudarstvennyy universitet.

SHVACHKIN, Yu.F.; SHPRUNKA, I.K.; KAZAKOVA, G.V.

Synthesis of deuterated 2-thiouracils. Zhur. ob. khim. 34 no.11:
3846-3847 N '64 (MIRA 18:1)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SHVACHKIN, Yu.P.; SHPRUNKA, I.K.

Synthesis of a pyrimidine analog of 2,4-dihydroxyphenylalanine.
Vest. Mosk. un. Ser. 2: Khim. 19 no.6:72-73 N-D '64. (MIRA 18:3)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

L 10883-66 EWT(m) RM

ACC NR: AP5028258

SOURCE CODE: UR/0189/65/000/004/0089/0091

AUTHOR: Shvachkin, Yu. P.; Berestenko, M. K.; Mishin, G. P.

25

B

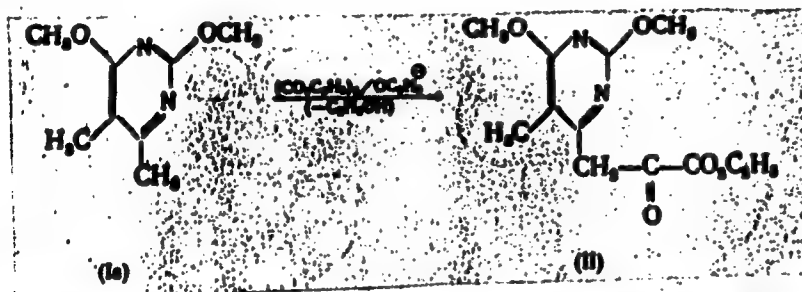
ORG: Department of Organic Chemistry, Moscow State University (Kafedra organicheskoy khimii Moskovskogo universiteta)

TITLE: Synthesis of Beta-(2,6-dihydroxy-5-methyl-4-pyrimidyl) alanine

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 4, 1965, 89-91

TOPIC TAGS: amino acid, alanine, pyrimidine

ABSTRACT: The synthetic paths are as follows:

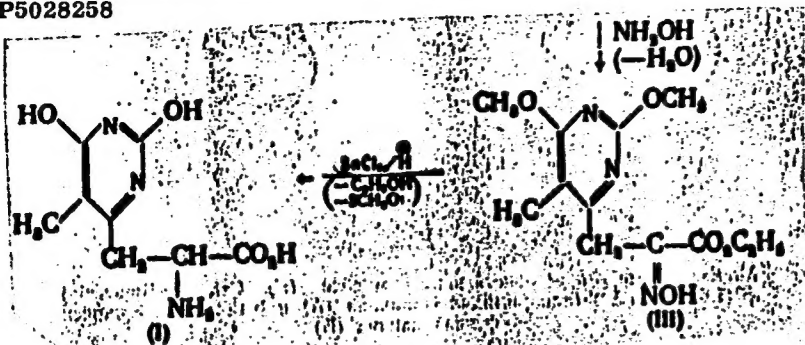


Card 1/3

UDC: 547.91/99

L 10883-66

ACC NR: AP5028258



It was found that β -(2,6-dihydroxy-5-methyl-4-pyrimidyl) alanine (I) can be easily prepared from 2,6-dimethoxy-4,5-dimethylpyrimidine (Ia), which in the presence of potassium alcoholate readily enters into a condensation reaction with diethyl oxalate, forming ethyl α -keto- β -(2,6-dimethoxy-5-methyl-4-pyrimidyl)propionate (II). When the latter reacts with hydroxylamine in an alcohol medium, it converts into ethyl α -oximino- β -(2,6-dimethoxy-5-methyl-4-pyrimidyl)propionate (III). The latter is easily converted into amino acid (I) by treating ester (III) with stannous chloride in HCl; in a single operation, the reduction of the ketoxime fragment, saponification of the ester group, and hydrolysis of ether bonds are thus accomplished. The new pyrimidyl amino acid (I) is a colorless substance with distinct amphoteric properties. It gives a positive color reaction (brownish-yellow) with ninhydrin. Orig. art. has: 1 figure and 1 table.

Card 2/3

L 10883-66

ACC NR: AP5028258

SUB CODE: 07 / SUBM DATE: 02Nov64

jw

Card 3/3

Reaction of 4-thiouracil with acrylonitrile. Vest. Mosk. un.
Ser. 2: Khim. 30 no.1:73-75 Ja-F '61.

(MIRA 18:3)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

